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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,735	05/04/2005	Robert Jochemsen	NL 021103	4556
65913	7590	08/15/2007	EXAMINER	
NXP, B.V.			SCHNEE, HAL W	
NXP INTELLECTUAL PROPERTY DEPARTMENT			ART UNIT	PAPER NUMBER
M/S41-SJ			2109	
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SAN JOSE, CA 95131				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/533,735	JOCHEMSEN ET AL.	
	Examiner Hal Schnee	Art Unit 2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. §.133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 04 May 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-25 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04 May 2005 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>14 November 2006</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. Claims 1-25 are pending in this application, as requested by applicant's preliminary amendment, received 04-May-2005.

Specification

2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code, referenced on p. 3, line 22. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.
3. The disclosure is objected to because of the following informalities: The disclosure references "working data structure 39" (p. 17, line 5). The working data structure is referred to elsewhere in the specification and the drawings by the number 38 (e.g. fig. 2 and p. 17, lines 6-7).

Appropriate correction is required.

Claim Objections

5. Claim 7 is objected to because of the following informalities: It appears that the word "on" (line 6) should read "one." Appropriate correction is required.
6. Claim 9 is objected to for being out of sequence as a dependent claim. A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to

Art Unit: 2109

any preceding independent claim. Claim 9 is dependent from Claim 3; it should be listed before Claims 5-8. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

7. Claim 15 objected to for lack of antecedent basis. The phrase "said deallocating step" (line 2) lacks antecedent basis in the present claim and in claim 11, on which the present claims depends. (It is present only in Claim 14, from which the present claim does not depend as amended.) Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-4 and 7-15 are rejected under 35 U.S.C. 102(e) as being unpatentable over Stockdale et al. (U.S. Patent 6,804,763, hereafter "Stockdale").

10. Regarding Claim 1, Stockdale teaches a memory management device for managing a memory space of at least one persistent-memory device (fig. 4; col. 4, lines 15-17—"non-volatile memory storage device"), comprising a memory allocation unit (col. 10, lines 52-55—"NV-RAM manager") adapted to communicate with at least one application device and to allocate at

Art Unit: 2109

least one first part of said memory space to said application device (col. 4, lines 17-25; application devices are shown in fig. 2, item 215), wherein said allocation unit is further adapted to communicate with at least one file system device, and to allocate on request from said application device or from said file system device said first part of said memory space to said file system (col. 7, lines 19-26).

11. Regarding Claim 2, Stockdale teaches said memory allocation unit is adapted to maintain a memory allocation table at a current status, said memory allocation table assigning at least one memory address representing a defined part of said memory space to either said application device or to said file system device (fig. 9; col. 29, lines 17-19).

12. Regarding Claim 3, Stockdale teaches a memory management device according to claim 2, further comprising a processor and a memory (fig. 3, processor 300 and memories 325 and 355), wherein said memory allocation unit is implemented in the form of at least one first executable file contained in said memory (col. 10, lines 52-55—"NV-RAM Manager").

13. Regarding Claim 4, Stockdale teaches said memory is a persistent-memory device, in particular said persistent-memory device (col. 33, lines 11-14—software is installed in the NV-RAM and executed on the processor, as shown in fig. 11, item 1140).

14. Regarding Claim 7, Stockdale teaches an application device, comprising a persistent-memory device connected to a processor (fig. 3, processor 300 and persistent-memory device

Art Unit: 2109

355; col. 17, line 64-col. 18, line 3), and a data management unit adapted to manipulate data in said persistent memory device (fig. 4; col. 4, lines 15-17—“non-volatile memory storage device”), wherein said data management unit is adapted to write at least one third executable file to said persistent memory device, or to provide the file system with a reference to at least one third executable file in said file system (col. 17, lines 38-41 shows adding an executable file to the persistent memory device; col. 35, lines 21-34 shows that the device can add any number of executable files), such that by executing said third executable file said processor is adapted to transform said data into a predetermined data-sequence form (col. 7, lines 45-49 and col. 35, lines 14-20—the processor can execute a compression utility, which transforms data into a predetermined data-sequence form).

15. Regarding Claim 8, Stockdale teaches said data management unit is provided in the form of least one fourth executable file in a memory, particularly, in said persistent memory (col. 10, lines 52-55—“NV-RAM Manager” and col. 33, lines 11-14—software is installed in the NV-RAM and executed on the processor, as shown in fig. 11, item 1140).

16. Regarding Claim 9, Stockdale teaches a storage medium containing said first executable file according to claim 3 (col. 33, lines 28-32 and 35-36—software can be loaded from a CD-ROM, indicating that a storage medium contains the executable file).

17. Regarding Claim 10, Stockdale teaches a data processing system (fig. 3), comprising a memory management device for managing a memory space of at least one persistent-memory

device (fig. 4; col. 4, lines 15-17—"non-volatile memory storage device"), comprising a memory allocation unit (col. 10, lines 52-55—"NV-RAM manager") adapted to communicate with at least one application device and to allocate at least one first part of said memory space to said application device (col. 4, lines 17-25; application devices are shown in fig. 2, item 215), wherein said allocation unit is further adapted to communicate with at least one file system device, and to allocate on request from said application device or from said file system device said first part of said memory space to said file system (col. 7, lines 19-26).

18. Regarding Claim 11, Stockdale teaches a method for managing memory space of a persistent-memory device (col. 6, lines 5-6), comprising a step of allocating at least one first part of said memory space to a file system device upon request from said file system device or from an application device (col. 6, lines 11-13 and col. 7, lines 23-26).

19. Regarding Claim 12, Stockdale teaches said allocating step comprises a step of blocking a writing access to said first part of said memory space (col. 6, lines 54-61 and col. 32, lines 22-24—restricting access means blocking writing access for certain devices or processes).

20. Regarding Claim 13, Stockdale teaches said allocating step comprises a step of giving away to said file system device the power of reading access to said first part of said memory space (col. 6, lines 46-50—sending a handle constitutes giving away reading access since the handle is required to access the allocated memory area).

Art Unit: 2109

21. Regarding Claim 14, Stockdale teaches a step of deallocating said first part of said memory space to a memory management device (col. 6, lines 41-43 and 54-58—the method includes deallocating among the functions).

22. Regarding Claim 15, Stockdale teaches said allocating step or said deallocating step comprises transmitting an address range defining said first part of said memory space from said memory management device to said file system device or, respectively, vice versa (col. 28, lines 18-20 and col. 29, lines 22-24—the method transmits a handle to a memory block of predefined size; this defines the range of addresses that is transmitted).

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stockdale in view of Cheng et al. (U.S. Patent 5,901,516, hereafter “Cheng”)

25. Regarding Claim 5, Stockdale teaches a file system device adapted to maintain a file allocation table at a current status, said file allocation table assigning at least one disk space

Art Unit: 2109

address to at least one file, wherein said file allocation Unit is adapted to communicate with a memory management device that is related to a persistent-memory device and to include an address of at least one first memory space of said persistent-memory device in the maintenance of said file allocation table (col. 34, lines 51-58—the same techniques are used for the file system device as for memory management for the application device. Fig. 12 and col. 35, lines 14-20 show the files; fig. 9 shows the file allocation table).

In the device of Stockdale, the functions of the file system device are performed by the same device/processor as the functions of the application device; Stockdale thus does not specifically teach a separate file system device, comprising a file allocation unit. However, Cheng teaches a file system device, comprising a file allocation unit (fig. 2, Storage Processor 38 {shown in detail in fig. 3}; col. 5, lines 34-37).

All of the claimed elements were known in the prior art and could have been combined by known methods to yield predictable results. It therefore would have been obvious to a person of ordinary skill in the art at the time of invention to combine the file allocation system of Stockdale with the file system device of Cheng.

26. Regarding Claim 6, Stockdale teaches a file system device according to claim 5, further comprising a processor and a memory (fig. 3, processor 300 and memories 325 and 355), wherein said memory allocation unit is implemented in the form of at least one first executable file contained in said memory (col. 10, lines 52-55—“NV-RAM Manager”). In addition, the file system device of Cheng comprises a processor and a memory (fig. 3a, microprocessor 52 and RAM 58; col. 8, lines 1-15). It would have been obvious to a person of ordinary skill in the art at

Art Unit: 2109

the time of invention to combine the teachings of Stockdale with the teachings of Cheng as described for Claim 5, above.

27. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stockdale as applied to Claims 11 and 14, above, in view of Lee et al. (U.S. Patent 5,930,167, hereafter "Lee").

28. Regarding Claim 16, Stockdale teaches said deallocating step is performed for said first part of said memory space based on any number of conditions (col. 32, lines 60-65—various flags govern when deallocation is and is not allowed). One finds that Stockdale does not specifically teach that deallocation is performed given the condition that first data contained in said first part of said memory space is stored in the form of file data in a second part of said memory space, said file data having a predetermined file structure, and that said second part of said memory space is allocated to said file system device.

However, Lee teaches that first data contained in said first part of said memory space is stored in the form of file data in a second part of said memory space, said file data having a predetermined file structure, and that said second part of said memory space is allocated to said file system device (col. 5, line 60-col. 6, line 6; figs. 4A-4D).

It would have been obvious to a person of ordinary skill in the art at the time of invention to use the conditional deallocation of Stockdale with the storing data of Lee as it improves similar methods in the same way. Using the known data storing technique of Lee as a condition

Art Unit: 2109

of Stockdale's deallocating the memory initially used by those data would have been obvious to a person of ordinary skill in the art.

29. Claims 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stockdale in view of Lee, as applied to Claim 16 , above, further in view of Cheng.

30. Regarding Claim 17, Stockdale and Lee teach said deallocating step is performed for said second part of said memory space given any number of conditions (Stockdale, col. 32, lines 60-65—any number of memory spaces can be allocated and deallocated). One finds that Stockdale and Lee do not teach that the condition that said file data has been written to a secondary storage medium. However, Cheng teaches deallocation given the condition that said file data has been written to a secondary storage medium (col. 6, lines 42-48—the flush operation writes the data to a disk, a secondary storage medium).

This constitutes a combination of the known deallocation method of Stockdale and Lee with the known technique of Cheng of writing data to a secondary storage medium to improve similar methods in the same way. It would have been obvious to a person of ordinary skill in the art to make this combination.

31. Regarding Claim 18, Stockdale and Lee teach a method for write-caching first data worked on by an application, said first data being contained in a first part of a memory space of a persistent-memory device, comprising a step of performing a memory managing method according to claim 17 (Lee, Abstract, lines 1-6 and col. 8, lines 10-14).

32. Regarding Claim 19, one finds that Stockdale and Lee do not specifically teach after said allocating step, a step of sending a confirmation message from said file system device to said application device. However, Cheng teaches after said allocating step, a step of sending a confirmation message from said file system device to said application device (col. 7, lines 50-59—after performing an operation, a confirmation message is sent to the application device {host processor}; and col. 13, lines 51-55—enabling the NVRAM constitutes an allocating step).

This combination of the write caching of Stockdale and Lee with the confirmation after allocation of Cheng is applying a known technique to improve similar methods in the same way. It therefore would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of Cheng with the teachings of Stockdale and Lee.

33. Regarding Claim 20, Stockdale and Lee teach said first data is a copy of third data contained in a third part of said memory space, said write-caching method comprising, before performing said memory managing method, a step of copying said third data to said first memory space (Lee, col. 5, line 60-col. 6, line 6; figs. 4A-4D shows the copying operation before the memory management method {i.e. before deallocating the memory}. Stockdale, col. 32, lines 60-65 shows flags determining when deallocation is allowed; in addition, Stockdale shows additional data, which can be the third data of the present claim, stored in the memory in col. 14, lines 44-50 and 62-63).

Art Unit: 2109

34. Regarding Claim 21, Stockdale and Lee teach allocating a fourth part of said memory space to said application device for an executable file or dynamic link library that is adapted to converting said first data into file data (Stockdale, col. 17, lines 38-41 shows adding an executable file to the persistent memory device; col. 35, lines 21-34 shows that the device can add any number of executable files; Lee, col. 5, line 60-col. 6, line 6 and figs. 4A-4D show an executable adapted to converting data into file data)

- writing said executable file or dynamic link library to said fourth part of said memory space (Stockdale, col. 33, lines 11-14—any number of executables can be stored in any number of parts of the memory space)

- allocating said fourth part of said memory space to said file system device (col. 7, lines 19-26 and col. 34, lines 51-58—any number of parts of the memory space can be allocated to the file system device).

35. Regarding Claim 22, Stockdale and Lee teach a step of transforming said first data into said file data with the aid of said executable file or said dynamic link library (Lee, col. 5, line 60-col. 6, line 6).

36. Regarding Claim 23, Stockdale and Lee teach said transforming step is initiated by said file system device (Lee, col. 6, lines 12-19—performing the transforming step when the memory system is idle is necessarily initiated by the file system device since the application device has no way of knowing when the memory system is idle).

Art Unit: 2109

37. Regarding Claim 24, Stockdale and Lee teach after said transforming step, a step of deallocating said fourth part of said memory space to said memory management device (Stockdale, col. 6, lines 41-43 and 54-58—the method includes deallocating among the functions, and it can be performed after any step in the process).

38. Regarding Claim 25, Stockdale and Lee teach performing a write-caching method according to claim 18 (see Claim 18, above). One finds that Stockdale and Lee do not specifically teach a method for saving data worked on by an application device to a file on a secondary storage medium, comprising the steps of writing said file data to said secondary storage medium. However, Cheng teaches a method for saving data worked on by an application device to a file on a secondary storage medium (col. 2, lines 57-61—data storage devices are a secondary storage medium), comprising the steps of writing said file data to said secondary storage medium (col. 7, lines 25-29).

All of the component methods are known in Stockdale and Lee and Cheng. It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the saving data of Cheng with the write-caching method of Stockdale and Lee to achieve the predictable result of storing the cached data on a secondary storage medium.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This art includes:

Art Unit: 2109

a. Hicken et al. (U.S. 2003/0212865) teaches write caching methods and writing cached data to a disk

b. Carper et al. (U.S. Patent 6,480,935) teaches memory allocation and file management on non-volatile memory on a smartcard

c. Maeda et al. (U.S. Patent 6,611,907) teaches an apparatus for management of memory and file allocation in a flash memory

d. Aasheim (U.S. 2002/0163631) teaches dynamic memory allocation and a file system in a non-volatile memory

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal Schnee whose telephone number is (571) 270-1918. The examiner can normally be reached on Monday-Friday 8:30 a.m. to 5:00 p.m. E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nabil M. El-Hady can be reached on (571) 272-3963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2109

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HWS 09-August-2007

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